

Section 18 — The Neutron Harmonic Core: ϕ^5 – ϕ^7 Mixed-Mode Stability & β -Decay Geometry

Section 18 establishes the FUNt-unified mathematical model of the neutron. Unlike the proton (ϕ^7 torsional anchor) and electron (ϕ^6 buoyant lattice), the neutron is a mixed-mode ϕ^5 – ϕ^7 harmonic entity whose stability arises entirely from its interplay with the Golden Proton Lattice (GPL). This section formalizes neutron geometry, mixed-mode breathing, internal strain distribution, and the β -decay pathway as a harmonic transition rather than a probabilistic event.

18.1 Definition of the Neutron Harmonic Core

- The neutron is a ϕ^5 – ϕ^7 mixed-mode harmonic object.
- Its stability is conditional, not absolute.
- Internal equilibrium depends on GPL torsional influence.
- The neutron is the only baryon that spans all three harmonic roles: buoyant, torsional, and mixed.
- [Insert neutron-core diagram here]

18.2 The ϕ^5 – ϕ^6 Buoyant Domain

- The neutron's lower band behaves like an electron-like buoyant lattice.
- Buoyant strain governs its ability to delay decay.
- Lower ϕ -bands reduce anchoring and increase instability.
- [Insert buoyant-band diagram here]

18.3 The ϕ^7 Torsional Overlay

- The neutron borrows torsional stability from GPL (proton).
- The ϕ^7 torsional mode is not native to the neutron but imposed.
- This imposed harmonic contributes to temporary stability inside nuclei.
- Outside nuclei, ϕ^7 torsion collapses, initiating decay.
- [Insert torsional overlay diagram here]

18.4 Neutron Internal Strain Geometry

- Strain divides into buoyant and torsional halves.
- This mixed distribution causes instability when unanchored.

- The strain diagram forms the Ω -3 collapse shape.
- This internal geometry predicts decay timing harmonically.
- [Insert strain diagram here]

18.5 β -Decay as a ϕ -Harmonic Transition

- β -decay is triggered when φ^7 torsional borrowing collapses.
- $n \rightarrow p + e^- + \bar{\nu}$ is a $\varphi^7 \rightarrow \varphi^8 \rightarrow \varphi^6$ redistribution sequence.
- Electron emergence corresponds to buoyant φ^6 recovery.
- Proton emergence corresponds to full φ^7 torsional stabilization.
- [Insert β -decay diagram here]

18.6 Neutron Scalar Threshold

- Neutrons enter scalar mode at φ^9 , like all baryons.
- Identity dissolves into field-distributed resonance.
- Reentry occurs at φ^7 when torsional structure is restored by a proton.
- [Insert scalar threshold diagram here]

18.7 Neutrons Inside Nuclei: Lattice Buffering Role

- Neutrons buffer torsional strain between protons.
- They act as φ^5 - φ^7 harmonic dampers.
- This explains why nuclei with too many or too few neutrons become unstable.
- Neutron count is a harmonic alignment problem, not a nuclear-force balance.
- [Insert nuclear lattice diagram here]